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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,060	04/08/2004	Eric R. Blomiley	MI22-2518	2095

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EXAMINER	
MOORE, KARLA A	
ART UNIT	PAPER NUMBER
1763	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/29/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/822,060	BLOMILEY ET AL.	
	Examiner	Art Unit	
	Karla Moore	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-4 and 6-16* is/are pending in the application.

4a) Of the above claim(s) *6 and 7* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-4 and 8-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *8 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 2-4, 8-9, 11-12 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,021,152 to Olsen et al in view of U.S. Patent No. 5,061,872 to Kulka and U.S. Patent No. 6,108,490 to Lee et al.

4. Olsen et al. disclose a deposition apparatus substantially as claimed and comprising : a substrate susceptor (Figure 1, 22) for receiving a semiconductor wafer substrate (20); one or more lamps (56 and 66) for providing radiant energy to the substrate; and at least one of the lamps having a reflector (Figure 3, 100) associated therewith for reflecting radiant energy form said at least one of the lamps toward the substrate, said reflector having a rugged reflective surface configured to disperses the radiant energy reflected therefrom (column 6, rows 34-30 and column 6, row 55 through column 7, row 3). Examiner notes that Olsen et al. further teach that is known in the art to provide reflectors behind CVD furnace heating lamps including roughened or otherwise irregular surfaces (column 6, rows 3-5).

5. However, Olsen et al. fail to explicitly teach a rugged reflective surface comprising a surface of crumpled metallic foil.

6. Kulka teach using a surface of crumpled metallic foil for the purpose of dispersing impinging light (column 8, rows 63-68 and column 10, rows 45-50).

7. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a crumpled metallic foil reflective surface in Olsen et al. in order to disperse impinging light as taught by Kulka.

8. Olsen et al. and Kulka disclose the invention substantially as claimed and as described above.

9. However, Olsen et al. and Kulka fail to teach adjacent lamps providing overlapping radiant energy impact the substrate.

10. Lee et al. teach adjusting the positioning of a plurality of lamps radiating energy to a substrate to change the degree of overlap between the energy radiated from adjacent lamps for the purpose of obtaining optimum temperature controllability (column 8, rows 39-43; column 8, row 66 through column 9, row 14; column 9, rows 19-25; and column 11, rows 30-40).

11. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the plurality of lamps in Olsen et al. at positions such that a desirable overlap is created between the respective radiant energy each creates for impacting the substrate in order to obtain optimum temperature controllability as taught by Lee et al.

12. Examiner recognizes that Lee et al. does not teach specific amounts of overlapping radiant energy as claimed. However, Examiner notes that the courts have ruled where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Based on the teachings of Lee et al. it would have been obvious to one of ordinary skill in the art that based on a desired heating pattern, the overlap of the radiant energy could be controlled as needed. Choosing a specific amount would have been based on a method performed using the apparatus and desired results.

13. With respect to claim 2, the rugged reflective surface comprises a repeating pattern (See Figure 3).

14. With respect to claim 3, the repeating pattern extends across entirely across the rugged reflective surface (column 9, rows 22-24).

15. With respect to claim 4, the rugged reflective surface comprises a repeating pattern of dimples (See Figure 3).

16. With respect to claims 9, 12 and 15, any of the inner and/or the outer lamps in Olsen et al. and Lee et al. could be positioned to overlap.

17. With respect to claims 11 and 14, as described above, optimization of the amount of energy overlapping would have been obvious to one of ordinary skill in the art

18. Claims 10, 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsen et al., Kulka and Lee et al. as applied to claims 2-4, 8-9, 11-12 and 14-15 above in view of U.S. Patent No. 4,558,660 to Nishizawa et al.

19. Olsen et al., Kulka and Lee et al. disclose the invention substantially as claimed and as described above.

20. However, Olsen et al., Kulka and Lee et al. fail to specifically teach four lamps, two inner and two outer.

21. Nishizawa et al. teach that the number of lamps necessary in a substrate processing apparatus for processing a substrate depends on the number and size of wafers to be processed simultaneously (column 6, rows 26-31).

22. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the necessary number of lamps in Olsen et al., Kulka and Lee et al. based on the number and size of wafers to be processed simultaneously as taught by Nishizawa et al.

Response to Arguments

23. Applicant's arguments filed 3 October 2006have been fully considered but they are not persuasive.

24. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and

does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

25. In response to applicant's argument that Kuka is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Olsen et al. teach that provision of stippling on the reflector is so that radiant heat energy is scattered and therefore uniformily applied to a substrate to be processed such that uniform temperature is achieved across the substrate. The stippling provides a non-planar, irregular surface to achieve this mechanism. Kulka teaches a different mechanism for providing a non-planar, irregular a surface, also used to scatter radiant energy. Although, these mechanisms are not provided in the same type of apparatus, they are both apparatus where the scattering of radiant energy is an issue and a non-planer irregular surface is provided to scatter the radiant energy. Therefore, it is fair to say that Kulka is reasonably pertinent to the particular problem with which Applicant is concerned.

26. With respect to Applicant's perceived lack of motivation for combination, Examiner notes that the Kulka expressly states that the mechanism can be used to disperse/scatter radiant energy as described above.

27. With respect to the arguments against the rejection of the claims using teachings of Lee, Examiner notes that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Lee fairly teaches positioning lamps so as to created the desired overlap, as claimed. Examiner does not contend that the reference expressly teaches incorporation of such a mechanism into an apparatus also using a rugged reflector. Positioning of lamps and provision of a rumpled reflector need not be mutually exclusive mechanisms for controlling radiant heat reflected from the lamps, as argued by Applicant.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karla Moore
Primary Examiner
Art Unit 1763
22 December 2006